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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,349	12/21/2001	Andre Zaccarin	42P11222	4986

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EXAMINER

LEE, Y YOUNG

ART UNIT PAPER NUMBER

2621

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/032,349	<b>Applicant(s)</b> ZACCARIN, ANDRE	
	<b>Examiner</b> Y. Lee	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al (New Fast Algorithms for the Estimation of Block Motion Vectors) in view of Pullen et al (5,923,376).

Liu et al discloses the same system and method of estimating a motion vector for a target block of pixels in a target frame relative to a reference frame as specified in claims 1-30 of the present invention, comprising defining a search area of the reference frame; defining a plurality of search sets (e.g. 1-4) based on the search area, each search set identifying pixels from a column or row of the search area, with each pixel in each search set identifying a respective block of pixels (i.e. subsampling); determining a set of candidate blocks with each block (Fig. 4), identified by a pixel in search set (Fig. 1), and minimizing a first distortion function relative to the target block (e.g. MAD), the first distortion function based only on a set of two or more collinear pixels from the target block and a set of two or more collinear pixels from block (e.g. B-E).

With respect to claims 2-30, the search area of Liu et al includes rows or columns (Fig. 1); each search set only identifies one or more pixels from one row or column and one or more pixels from every other row or column of the search area (Fig. 2); each pixel in each search set occupies the upper left position (e.g. a) of its associated block of pixels; each row or column of pixels in the search area consists of a first number of pixels (i.e. entire block); each search set identifies less than the first number of pixels (i.e. subsampling); the set of two or more collinear pixels from the target block consists of pixels in the row or column of the target block and the set of two or more collinear pixels from the block consists of pixels from the row or column of the block (e.g. pixel a); the plurality of search sets are mutually exclusive (Fig. 1); the second distortion function is based on all the pixels of the target block (i.e. no subsampling); and each block consists of 16 rows or 16 columns.

It is noted Liu et al differs from the present invention in that it fails to particularly disclose the step of minimizing a second distortion function as specified in claims 1-30. Pullen et al however, in Figures 5-7, 9-11, 13, 20, and 21, teaches the concept of such well known additional steps of determining which of the candidate blocks 64 minimizes a second distortion function (e.g. least cost) relative to the target block; and estimating the motion vector (e.g. Fig. 3) based on the target block and one of the candidate blocks (e.g. 66) that minimizes the second distortion function.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, having both the references of Liu et al and Pullen et al before him/her, to exploit the well known additional distortion minimization technique as

taught by Pullen et al in the block matching method of Liu et al in order to determine the best block correspondence at the lowest cost.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. Lee whose telephone number is (571) 272-7334. The examiner can normally be reached on (571) 272-7334.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached on (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Y. Lee